Code.No: A109211101 | R09 | SET-1

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
APPLIED BIOCHEMISTRY
(BIO-MEDICAL ENGINEERING)

Time: 3hours **Max.Marks:75**

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Describe the role of physiological buffers in biological systems.
b) Define Carbohydrates and write any two Structures from aldoses and ketoses.
c) Write a brief note on Structural Aspect of Lipids. [5+5+5]

2.a) Explain in detail the Structure of Eucaryotic cell and mention the functions of each organelle with neat Labelled diagram.
b) Write about the chemical composition of cell wall in prokaryotic cell. [10+5]

3.a) Describe the components of Electron transport chain.
b) Define Oxidative and Substrate level phosphorylation with suitable examples and mention energitics. [8+7]

4.a) Define and classify enzymes with suitable examples.
b) Explain the Diagnostic and therapeutic uses of enzymes. [8+7]

5.a) Describe the various metabolic reactions involved in krebs cycle. Why it is called amphibolic in nature and calculate the liberated energy.
b) Explain the β – Oxidation of fatty acids. [10+5]

6.a) Write the principle, method and applications of Radio Immuno Assay (RIA).
b) Write a brief notes on chemilumini scence. [8+7]

7.a) What is the composition of blood and explain the separation of serum proteins by elctrophoresis.
b) Write the principle and procedure involved in quantitative Analysis of urine. [8+7]

8.a) Write the principles of chromatography and flamephtometry in Biochemical Analysis.
b) Write the applications of isotopes in Biochemistry. [8+7]

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Code.No: A109211101 | R09 | SET-2

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
APPLIED BIOCHEMISTRY
(BIO-MEDICAL ENGINEERING)

Time: 3hours **Max.Marks:75**

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Derive the equation of Henderson – Hassel Balch for the ionization of weak acids.
b) Classify Carbohydrates with suitable examples.
c) What is peptide bond? Explain all aminoacids are optically active except Glycine why? [5+5+5]

2.a) Describe the structure of Eucaryotic cell and mention the functions of each organelle with neat labelled diagram.
b) Write a brief notes on transport of substances across the biological membrane. [10+5]

3.a) Explain the various components involved in electron transport systems in mitochondria.
b) What is Oxidative phosphorylation with suitable examples and give the mechanistic detail. [8+7]

4.a) Define and classify enzymes with suitable examples.
b) Mention the diagnostic and therapeutic of enzymes. [8+7]

5.a) What is Glycolysis and describe the various metabolic reactions involved in Glycolysis and calculate the liberated energy.
b) Write a brief notes on metabolism of Lipids. [8+7]

6.a) Explain in detail the various steps in protein synthesis.
b) Write a brief note on principle, method and applications of Radio Immuno Assay (RIA). [8+7]

7.a) Write the different qualitative tests for the analysis of urine.
b) Explain the measurement methods Acid base and electrolyte balance of the patients. [8+7]

8.a) Write the general methods of biochemical analysis carried out in the estimation of blood glucose.
b) What are the applications of Isotopes in biochemistry? [8+7]

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Code.No: A109211101 | R09 | SET-3

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
APPLIED BIOCHEMISTRY
(BIO-MEDICAL ENGINEERING)

Time: 3hours **Max.Marks:75**

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Define PH? And mention the various buffers commonly employed in biochemistry.
b) What is mutarotation and write the Hawarth projection formulas of Glucose and fructose.
c) Give the general formula of Amino acid and describe the zwitterionic nature if it. [5+5+5]

2.a) Describe the structure of Eucaryotic cell and mention the functions of each organelle with neat labeled diagram.
b) Low density lipoproteins is readily translocated from the exterior of liver cell to its interior. Describe s possible mechanism for this transport. [10+5]

3.a) Describe the main components present in the respiratory chain.
b) Explain the Oxidative phosphorylation with mechanistic detail. [8+7]

4.a) Derive the michaelis – menten equation for the enzyme kinetics and give its significance.
b) Write a brief notes on Diagnostic and therapeutic role of enzymes. [8+7]

5.a) Describe the metabolic reactions involved in kerbs cycle and calculate the Liberated energy.
b) Explain the biosynthesis of cholesterol. [8+7]

6.a) Explain in detail the process of protein synthesis.
b) Write the principle, procedure and applications of Enzyme – Linked Immuno Sorbent Assay (ELISA). [8+7]

7.a) How can you measure the electrolyte and acid balance of the patients.
b) Write a note on qualitative analysis of urine. [8+7]

8.a) Write the principle and procedure involved in the quantitative estimation of blood glucose.
b) Write the applications of isotopes in biochemistry. [8+7]

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Code.No: A109211101 | R09 | SET-4

II B.TECH – I SEM EXAMINATIONS, NOVEMBER - 2010
APPLIED BIOCHEMISTRY
(BIO-MEDICAL ENGINEERING)

Time: 3hours **Max.Marks:75**

Answer any FIVE questions
All questions carry equal marks
- - -

1.a) Calculate the PH of a solution that was prepared by dissolving 0.02 moles of formic acid and 0.012 moles of NaOH in water to give a final volume of 100 ml?
b) Define Carbohydrates with suitable examples and write the fischers projection formulas of monosaccharides.
c) Classify amino acids with suitable examples. [5+5+5]

2.a) Describe the Structure of Eucaryotic cell and mention the functions of each organelle with neat labeled diagram.
b) Explain the transport of various substances across the biological membrane. [10+5]

3.a) Explain the components of electron transport systems in mitochondria.
b) What is Oxidative phosphorylation and calculate the energy yield. [8+7]

4.a) Write the diagnostic and therapeutic role of enzymes.
b) Define enzymes and write the properties of enzymes. [8+7]

5.a) Describe the various metabolic events observed in citric acid cycle and calculate the liberated energy.
b) Explain the various steps involved in biosynthesis of cholesterol. [10+5]

6.a) Describe the various steps in protein synthesis.
b) Write the principle, procedure and applications of Enzyme Linked Sorbent Assay (ELISA). [8+7]

7.a) How can you separate serum proteins and lipoproteins by Ultracentrifugation.
b) Describe the various qualitative tests for the analysis of urine. [8+7]

8.a) Write the principles of chromatohraphy and flame photometry in Biochemical Analysis.
b) Write the principle, procedure involved in the estimation of Bloodglucose. [8+7]

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